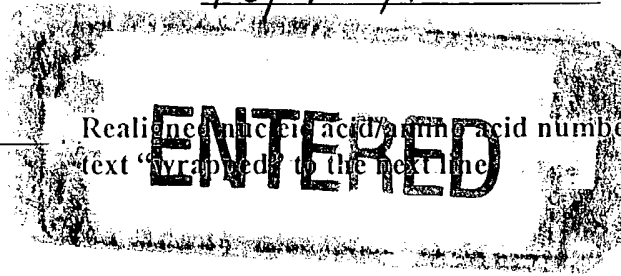


1FWO

CRF Errors Edited by the STIC Systems Branch

Serial Number: 10/706,435A

CRF Edit Date: 9/29/04
Edited by: Re



Realigned nucleic acid/amino acid numbers/text in cases where the sequence text "wrapped" to the next line

___ Corrected the SEQ ID NO. Sequence numbers edited were:

___ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:

___ Deleted: ___ invalid beginning/end-of-file text ; ___ page numbers

___ Inserted mandatory headings/numeric identifiers, specifically:

___ Moved responses to same line as heading/numeric identifier, specifically:

___ Other:

Sequence 5 - corrected amino acid numbering; inserted
42207, 42237 numeric identifiers after 4th line
of 42237 response



IFWO

RAW SEQUENCE LISTING

DATE: 09/29/2004

PATENT APPLICATION: US/10/706,435A

TIME: 11:12:57

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\09292004\J706435A.raw

3 <110> APPLICANT: Walter Reed Army Institute of Research
 4 Lanar, David E.
 5 Hillier, Collette J.
 6 Lyon, Jeffrey A.
 7 Angov, Evelina
 8 Kumar, Sanjai
 9 Rogers, William
 10 Barbosa, Arnaldo
 12 <120> TITLE OF INVENTION: Expression, Purification, and Uses of a Plasmodium
 13 falciparum Liver Stage Antigen 1 Polypeptide
 15 <130> FILE REFERENCE: 003/285/SAP
 17 <140> CURRENT APPLICATION NUMBER: 10/706,435A
 19 <141> CURRENT FILING DATE: 2003-11-12
 21 <150> PRIOR APPLICATION NUMBER: 60/425,719
 23 <151> PRIOR FILING DATE: 2002-11-12
 25 <160> NUMBER OF SEQ ID NOS: 28
 27 <170> SOFTWARE: Microsoft Word XP
 29 <210> SEQ ID NO: 1
 30 <211> LENGTH: 17
 31 <212> TYPE: PRT
 32 <213> ORGANISM: P. falciparum LSA-1
 33 <220> FEATURE:
 34 <223> OTHER INFORMATION: LSA-1 major 17 amino acid repeat
 35 <400> SEQUENCE: 1
 37 Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg
 38 5 10
 39 Leu Ala Lys Glu Lys Leu Gln
 40 15
 42 <210> SEQ ID NO: 2
 43 <211> LENGTH: 17
 44 <212> TYPE: PRT
 45 <213> ORGANISM: P. falciparum LSA-1
 46 <220> FEATURE:
 47 <223> OTHER INFORMATION: LSA-1 minor 17 amino acid repeat
 48 <400> SEQUENCE: 2
 50 Glu Gln Gln Arg Asp Leu Glu Gln Glu Arg
 51 5 10
 52 Leu Ala Lys Glu Lys Leu Gln
 53 15
 55 <210> SEQ ID NO: 3
 56 <211> LENGTH: 1374
 57 <212> TYPE: DNA
 58 <213> ORGANISM: Artificial sequence

RAW SEQUENCE LISTING

DATE: 09/29/2004

PATENT APPLICATION: US/10/706,435A

TIME: 11:12:57

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\09292004\J706435A.raw

59 <220> FEATURE:

60 <223> OTHER INFORMATION: LSA-NRC(H)Mut

61 <400> SEQUENCE: 3

```

63 atgggtacca acagcgaaaa agacgaaatt atcaaaagca    40
64 atctccgctc cggcagctcc aacagccgca accgcatcaa    80
65 cgaggaaaaag catgagaaga aacatgtgct gagccacaac   120
66 tcctacgaga agactaaaaa caacgaaaac aacaaattct   160
67 ttgacaagga caaagagctg acgatgagca acgttaaaaa   200
68 cgtatcccag accaacttta aatccctcct gcgcaacctc   240
69 ggcgtttccg agaacatctt tctcaaagaa aacaaactga   280
70 acaaggaagg caaactgatt gaacatatca tcaacgacga   320
71 cgatgacaaa aaaaaatata ttaaaggcca ggatgaaaat   360
72 cgccaggaag acctcgaaga aaaagctgct gaacagcagt   400
73 cggacctgga acaggagcgc ctcgctaaag aaaagctcca   440
74 ggagcgctc gctaaagaaa agctccagga gcaacagcgc   480
75 gacctggaac agcgcaaggc tgacacgaaa aaaaacctgg   520
76 aacgcaaaaa ggaacacggc gacgttctgg ctgaggacct   560
77 gtacggccgc ctggaaatcc cagctatcga actcccatcc   600
78 gaaaacgaac gcggtacta catcccacac cagagcagcc   640
79 tgccacaaga taatcgcggg aactcccgcg acagtaagga   680
80 aatcagcatc atcgaaaaaa ccaaccgcga aagcattacc   720
81 accaactgtg aaggccgccc cgacatccac aaaggccacc   760
82 tcgaagaaaa gaaagacggc tccatcaaac cagaacagaa   800
83 agaagacaaa agcgctgata tccagaacca caccctggag   840
84 accgtgaaca ttagcgacgt gaacgacttc cagatcagca   880
85 agtacgagga cgaaatctcc gctgaatacg atgactcct   920
86 gatcgacgaa gaagaagacg acgaagatct ggatgaattc   960
87 aaaccaattg tccagtacga taactttcag gacgaagaaa  1000
88 atatcggcac ttacaaagaa ctggaagacc tcacgagaaa  1040
89 aaacgaaaaa ctggacgacc tggacgaagg catcgaaaaa  1080
90 tcctccgaag aactgagcga agaaaaaatc aaaaaaggca  1120
91 agaaatacga aaaaaccaag gacaacaact tcaaaccaaa  1160
92 cgacaaatcc ctctacgacg agcacattaa aaaatacaaa  1200
93 aacgacaagc aagtgaacaa ggaaaaggaa aaatttatca  1240
94 aatccctctt ccacatcttc gatggcgata acgaaattct  1280
95 gcaaattgta gacgaacggg tgagcgaaga catcactaaa  1320
96 tacttcatga agcttggggg ctccggttct ccacaccacc  1360
97 accaccacca ctga                                1374

```

100 <210> SEQ ID NO: 4

101 <211> LENGTH: 457

102 <212> TYPE: PRT

103 <213> ORGANISM: Artificial sequence

104 <220> FEATURE:

105 <223> OTHER INFORMATION: LSA-NRC(H)Mut

106 <400> SEQUENCE: 4

```

108 Met Gly Thr Asn Ser Glu Lys Asp Glu Ile
109                               5          10
110 Ile Lys Ser Asn Leu Arg Ser Gly Ser Ser
111                               15          20

```

RAW SEQUENCE LISTING

DATE: 09/29/2004

PATENT APPLICATION: US/10/706,435A

TIME: 11:12:57

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\09292004\J706435A.raw

```

112 Asn Ser Arg Asn Arg Ile Asn Glu Glu Lys
113                25                30
114 His Glu Lys Lys His Val Leu Ser His Asn
115                35                40
116 Ser Tyr Glu Lys Thr Lys Asn Asn Glu Asn
117                45                50
118 Asn Lys Phe Phe Asp Lys Asp Lys Glu Leu
119                55                60
120 Thr Met Ser Asn Val Lys Asn Val Ser Gln
121                65                70
122 Thr Asn Phe Lys Ser Leu Leu Arg Asn Leu
123                75                80
124 Gly Val Ser Glu Asn Ile Phe Leu Lys Glu
125                85                90
126 Asn Lys Leu Asn Lys Glu Gly Lys Leu Ile
127                95               100
128 Glu His Ile Ile Asn Asp Asp Asp Asp Lys
129               105               110
130 Lys Lys Tyr Ile Lys Gly Gln Asp Glu Asn
131               115               120
132 Arg Gln Glu Asp Leu Glu Glu Lys Ala Ala
133               125               130
134 Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg
135               135               140
136 Leu Ala Lys Glu Lys Leu Gln Glu Arg Leu
137               145               150
138 Ala Lys Glu Lys Leu Gln Glu Gln Gln Arg
139               155               160
140 Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys
141               165               170
142 Lys Asn Leu Glu Arg Lys Lys Glu His Gly
143               175               180
144 Asp Val Leu Ala Glu Asp Leu Tyr Gly Arg
145               185               190
146 Leu Glu Ile Pro Ala Ile Glu Leu Pro Ser
147               195               200
148 Glu Asn Glu Arg Gly Tyr Tyr Ile Pro His
149               205               210
150 Gln Ser Ser Leu Pro Gln Asp Asn Arg Gly
151               215               220
152 Asn Ser Arg Asp Ser Lys Glu Ile Ser Ile
153               225               230
154 Ile Glu Lys Thr Asn Arg Glu Ser Ile Thr
155               235               240
156 Thr Asn Val Glu Gly Arg Arg Asp Ile His
157               245               250
158 Lys Gly His Leu Glu Glu Lys Lys Asp Gly
159               255               260
162 Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys

```

RAW SEQUENCE LISTING

DATE: 09/29/2004

PATENT APPLICATION: US/10/706,435A

TIME: 11:12:57

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\09292004\J706435A.raw

```

163          265          270
164 Ser Ala Asp Ile Gln Asn His Thr Leu Glu
165          275          280
166 Thr Val Asn Ile Ser Asp Val Asn Asp Phe
167          285          290
168 Gln Ile Ser Lys Tyr Glu Asp Glu Ile Ser
169          295          300
170 Ala Glu Tyr Asp Asp Ser Leu Ile Asp Glu
171          305          310
172 Glu Glu Asp Asp Glu Asp Leu Asp Glu Phe
173          315          320
174 Lys Pro Ile Val Gln Tyr Asp Asn Phe Gln
175          325          330
176 Asp Glu Glu Asn Ile Gly Ile Tyr Lys Glu
177          335          340
178 Leu Glu Asp Leu Ile Glu Lys Asn Glu Asn
179          345          350
180 Leu Asp Asp Leu Asp Glu Gly Ile Glu Lys
181          355          360
182 Ser Ser Glu Glu Leu Ser Glu Glu Lys Ile
183          365          370
184 Lys Lys Gly Lys Lys Tyr Glu Lys Thr Lys
185          375          380
186 Asp Asn Asn Phe Lys Pro Asn Asp Lys Ser
187          385          390
188 Leu Tyr Asp Glu His Ile Lys Lys Tyr Lys
189          395          400
190 Asn Asp Lys Gln Val Asn Lys Glu Lys Glu
191          405          410
192 Lys Phe Ile Lys Ser Leu Phe His Ile Phe
193          415          420
194 Asp Gly Asp Asn Glu Ile Leu Gln Ile Val
195          425          430
196 Asp Glu Arg Leu Ser Glu Asp Ile Thr Lys
197          435          440
198 Tyr Phe Met Lys Leu Gly Gly Ser Gly Ser
199          445          450
200 Pro His His His His His His
201          455
203 <210> SEQ ID NO: 5
204 <211> LENGTH: 17
205 <212> TYPE: PRT
206 <213> ORGANISM: Artificial sequence
207 <220> FEATURE:
208 <223> OTHER INFORMATION: LSA-1 Consensus sequence of 17 amino acid repeats
209     where Xaa at position 1 is either Glu or Gly; Xaa at
210     position 4 is Ser or Arg; Xaa at position 6 is Asp or Ser;
211     Xaa at position 9 is Glu or Asp; Xaa at position 11 is Leu
212 <220> FEATURE:

```

RAW SEQUENCE LISTING

DATE: 09/29/2004

PATENT APPLICATION: US/10/706,435A

TIME: 11:12:57

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\09292004\J706435A.raw

213 <223> OTHER INFORMATION: or Arg; Xaa at position 13 is Lys or Asn and Xaa at position
 214 15 is Lys or Thr or Arg.
 216 <400> SEQUENCE: 5
 W--> 217 Xaa Gln Gln Xaa Asp Xaa Glu Gln Xaa Arg
 218 5 10
 220 Xaa Ala Xaa Glu Xaa Leu Gln
 221 15
 223 <210> SEQ ID NO: 6
 224 <211> LENGTH: 24
 225 <212> TYPE: PRT
 226 <213> ORGANISM: P. falciparum LSA-1
 227 <220> FEATURE:
 228 <223> OTHER INFORMATION: P. falciparum LSA-1 T1 epitope
 229 <400> SEQUENCE: 6
 230 Leu Thr Met Ser Asn Val Lys Asn Val Ser
 231 5 10
 232 Gln Thr Asn Phe Lys Ser Leu Leu Arg Asn
 233 15 20
 234 Leu Gly Val Ser
 236 <210> SEQ ID NO: 7
 237 <211> LENGTH: 17
 238 <212> TYPE: PRT
 239 <213> ORGANISM: P. falciparum LSA-1
 240 <220> FEATURE:
 241 <223> OTHER INFORMATION: P. falciparum LSA-1 LSA-Rep epitope
 242 <400> SEQUENCE: 7
 243 Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg
 244 5 10
 245 Leu Ala Lys Glu Lys Leu Gln
 246 15
 248 <210> SEQ ID NO: 8
 249 <211> LENGTH: 17
 250 <212> TYPE: PRT
 251 <213> ORGANISM: P. falciparum LSA-1
 252 <220> FEATURE:
 253 <223> OTHER INFORMATION: P. falciparum LSA-1 J epitope
 254 <400> SEQUENCE: 8
 255 Glu Arg Leu Ala Lys Glu Lys Leu Gln Glu
 256 5 10
 257 Gln Gln Arg Asp Leu Glu Gln
 258 15
 260 <210> SEQ ID NO: 9
 261 <211> LENGTH: 20
 262 <212> TYPE: PRT
 263 <213> ORGANISM: P. falciparum LSA-1
 264 <220> FEATURE:
 265 <223> OTHER INFORMATION: P. falciparum LSA-1 NR epitope
 266 <400> SEQUENCE: 9
 269 Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/706,435A

DATE: 09/29/2004
TIME: 11:12:58

Input Set : A:\PTO.AMC.txt
Output Set: N:\CRF4\09292004\J706435A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:5; Xaa Pos. 1,4,6,9,11,13,15



IFWO

RAW SEQUENCE LISTING

DATE: 09/27/2004

PATENT APPLICATION: US/10/706,435A

TIME: 11:39:09

Input Set : A:\PTO.LM.txt

Output Set: N:\CRF4\09272004\J706435A.raw

3 <110> APPLICANT: Walter Reed Army Institute of Research
 4 Lanar, David E.
 5 Hillier, Collette J.
 6 Lyon, Jeffrey A.
 7 Angov, Evelina
 8 Kumar, Sanjai
 9 Rogers, William
 10 Barbosa, Arnaldo
 12 <120> TITLE OF INVENTION: Expression, Purification, and Uses of a Plasmodium
 13 falciparum Liver Stage Antigen 1 Polypeptide
 15 <130> FILE REFERENCE: 003/285/SAP
 17 <140> CURRENT APPLICATION NUMBER: 10/706,435A
 19 <141> CURRENT FILING DATE: 2003-11-12
 21 <150> PRIOR APPLICATION NUMBER: 60/425,719
 23 <151> PRIOR FILING DATE: 2002-11-12
 25 <160> NUMBER OF SEQ ID NOS: 28
 27 <170> SOFTWARE: Microsoft Word XP

ERRORED SEQUENCES

203 <210> SEQ ID NO: 5
 204 <211> LENGTH: 17
 205 <212> TYPE: PRT
 206 <213> ORGANISM: Artificial sequence
 W--> 207 <220> FEATURE:
 208 <223> OTHER INFORMATION: LSA-1 Consensus sequence of 17 amino acid repeats
 209 where Xaa at position 1 is either Glu or Gly; Xaa at
 210 position 4 is Ser or Arg; Xaa at position 6 is Asp or Ser;
 211 Xaa at position 9 is Glu or Asp; Xaa at position 11 is Leu
 W--> 212 or Arg; Xaa at position 13 is Lys or Asn and Xaa at position
 W--> 213 15 is Lys or Thr or Arg.
 215 <400> SEQUENCE: 5
 W--> 216 Xaa Gln Gln Xaa Asp Xaa Glu Gln Xaa Arg
 217 5 10
 W--> 219 Xaa Ala Xaa Glu Xaa Leu Gln
 E--> 220 15
 ↑

Does Not Comply
Corrected Diskette Needed

VARIABLE LOCATION SUMMARY

DATE: 09/27/2004

PATENT APPLICATION: US/10/706,435A

TIME: 11:39:10

Input Set : A:\PTO.LM.txt

Output Set: N:\CRF4\09272004\J706435A.raw

Use of n's or Xaa's (NEW RULES):

Use of n's and/or Xaa's have been detected in the Sequence Listing.

Use of <220> to <223> is MANDATORY if n's or Xaa's are present.

in <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.

Seq#:5; Xaa Pos. 1, 4, 6, 9, 11, 13, 15

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/706,435A

DATE: 09/27/2004

TIME: 11:39:10

Input Set : A:\PTO.LM.txt

Output Set: N:\CRF4\09272004\J706435A.raw

L:33 M:283 W: Missing Blank Line separator, <220> field identifier
L:35 M:283 W: Missing Blank Line separator, <400> field identifier
L:46 M:283 W: Missing Blank Line separator, <220> field identifier
L:48 M:283 W: Missing Blank Line separator, <400> field identifier
L:59 M:283 W: Missing Blank Line separator, <220> field identifier
L:61 M:283 W: Missing Blank Line separator, <400> field identifier
L:104 M:283 W: Missing Blank Line separator, <220> field identifier
L:106 M:283 W: Missing Blank Line separator, <400> field identifier
L:207 M:283 W: Missing Blank Line separator, <220> field identifier
L:212 M:259 W: Allowed number of lines exceeded, <223> Other Information:
L:213 M:259 W: Allowed number of lines exceeded, <223> Other Information:
L:216 M:258 W: Mandatory Feature missing, <221> Tag not found for SEQ ID#:5
L:216 M:258 W: Mandatory Feature missing, <222> Tag not found for SEQ ID#:5
L:216 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0
L:219 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:10
L:220 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:5
L:226 M:283 W: Missing Blank Line separator, <220> field identifier
L:228 M:283 W: Missing Blank Line separator, <400> field identifier
L:239 M:283 W: Missing Blank Line separator, <220> field identifier
L:241 M:283 W: Missing Blank Line separator, <400> field identifier
L:251 M:283 W: Missing Blank Line separator, <220> field identifier
L:253 M:283 W: Missing Blank Line separator, <400> field identifier
L:263 M:283 W: Missing Blank Line separator, <220> field identifier
L:265 M:283 W: Missing Blank Line separator, <400> field identifier
L:277 M:283 W: Missing Blank Line separator, <220> field identifier
L:279 M:283 W: Missing Blank Line separator, <400> field identifier
L:292 M:283 W: Missing Blank Line separator, <220> field identifier
L:294 M:283 W: Missing Blank Line separator, <400> field identifier
L:302 M:283 W: Missing Blank Line separator, <220> field identifier
L:304 M:283 W: Missing Blank Line separator, <400> field identifier
L:315 M:283 W: Missing Blank Line separator, <220> field identifier
L:317 M:283 W: Missing Blank Line separator, <400> field identifier
L:325 M:283 W: Missing Blank Line separator, <220> field identifier
L:327 M:283 W: Missing Blank Line separator, <400> field identifier
L:339 M:283 W: Missing Blank Line separator, <220> field identifier
L:341 M:283 W: Missing Blank Line separator, <400> field identifier
L:352 M:283 W: Missing Blank Line separator, <220> field identifier
L:354 M:283 W: Missing Blank Line separator, <400> field identifier
L:365 M:283 W: Missing Blank Line separator, <220> field identifier
L:367 M:283 W: Missing Blank Line separator, <400> field identifier
L:376 M:283 W: Missing Blank Line separator, <220> field identifier
L:378 M:283 W: Missing Blank Line separator, <400> field identifier
L:389 M:283 W: Missing Blank Line separator, <220> field identifier
L:391 M:283 W: Missing Blank Line separator, <400> field identifier
L:400 M:283 W: Missing Blank Line separator, <220> field identifier
L:402 M:283 W: Missing Blank Line separator, <400> field identifier
L:413 M:283 W: Missing Blank Line separator, <220> field identifier
L:415 M:283 W: Missing Blank Line separator, <400> field identifier

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/706,435A

DATE: 09/27/2004

TIME: 11:39:10

Input Set : A:\PTO.LM.txt

Output Set: N:\CRF4\09272004\J706435A.raw

L:425 M:283 W: Missing Blank Line separator, <220> field identifier
L:427 M:283 W: Missing Blank Line separator, <400> field identifier
L:438 M:283 W: Missing Blank Line separator, <220> field identifier
L:440 M:283 W: Missing Blank Line separator, <400> field identifier
L:448 M:283 W: Missing Blank Line separator, <220> field identifier
L:451 M:283 W: Missing Blank Line separator, <400> field identifier
L:464 M:283 W: Missing Blank Line separator, <220> field identifier
L:466 M:283 W: Missing Blank Line separator, <400> field identifier
L:508 M:283 W: Missing Blank Line separator, <220> field identifier
L:510 M:283 W: Missing Blank Line separator, <400> field identifier
L:610 M:283 W: Missing Blank Line separator, <220> field identifier
L:612 M:283 W: Missing Blank Line separator, <400> field identifier
L:620 M:283 W: Missing Blank Line separator, <220> field identifier
L:622 M:283 W: Missing Blank Line separator, <400> field identifier